

AGILENT TECHNOLOGIES, INC.  
Legal Department, DL429  
Intellectual Property Administration  
P. O. Box 7599  
Loveland, Colorado 80537-0599

IFW  
PATENT APPLICATION  
ATTORNEY DOCKET NO. 10010111-1

IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE



Inventor(s): Gregory D. VanWiggeren

Serial No.: 10/001,315

Examiner: Chang, Audrey Y.

Filing Date: 10/24/2001

Group Art Unit: 2872

Title: OPTICAL SYSTEMS AND METHODS USING SELECTABLE ELECTRO-HOLOGRAMS

ASSISTANT COMMISSIONER FOR PATENTS  
PO Box 1450  
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith in triplicate is the Appeal Brief in this application with respect to the Notice of Appeal filed on March 30, 2004.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) \$330.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

( ) (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

( ) one month	\$110.00
( ) two months	\$420.00
( ) three months	\$950.00
( ) four months	\$1480.00

(X) The extension fee has already been filled in this application.

( ) (b) Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 50-1078 the sum of \$330.00. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account 50-1078 pursuant to 37 CFR 1.25.

(X) A duplicate copy of this transmittal letter is enclosed.

(X) I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450.  
Date of Deposit: 05/19/2004 or

Respectfully submitted,

Gregory D. VanWiggeren

By P. S. Dara

P. S. Dara

Attorney/Agent for Applicant(s)  
Reg. No. 52,793

Date: 05/19/2004

Typed Name: Evelyn Sanders

Signature: Evelyn Sanders



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES

In Re Application of: ) Confirmation No.: 2348  
Gregory D. VanWiggeren ) Group Art Unit: 2872  
Serial No.: 10/001,315 ) Examiner: Chang, Audrey Y.  
Filed: 10/24/2001 ) Docket No. 10010111-1  
For: Optical Systems and )  
Methods Using Selectable )  
Electro-Holograms )

Certificate of Mailing

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to: Mail Stop Appeal Brief; Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on 05-19-04.

Evelyn Sanders  
Signature – Evelyn Sanders

**APPEAL BRIEF UNDER 37 C.F.R. §1.192**

Mail Stop - Appeal Brief  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is an appeal from the decision of Examiner Audrey Y. Chang, Group Art Unit 2872, of March 12, 2004 (Paper No. 03052004), which is an interview summary provided subsequent to FINAL Office Action dated December 4, 2003 (Paper No. 6) rejecting claims 2-6, 8-12, 14 and 17-23 in the present application and making the rejection FINAL.

05/26/2004 DEMMANU1 00000084 501078 10001315

01 FC:1402 330.00 DA

## **I. REAL PARTY IN INTEREST**

The real party in interest of the instant application is Agilent Technologies, Inc., a corporation, having its principal place of business at 3500 Deer Creek Road, Palo Alto, California 94304-1317.

## **II. RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

## **III. STATUS OF THE CLAIMS**

All pending claims 2-6, 8-12, 14, 17-23 stand rejected. Specifically, the FINAL Office Action rejects claims 2-6, 8-12, 14, 17-23 under 35 U.S.C. §103(a) as allegedly anticipated by U.S. Patent 6,356,366 to Popovich in view of the patent issued to De Vre et al (U.S. Patent 5,640,256).

Present status of claims is as follows:

Claims 1, 7, 13, 15 and 16 – Canceled

Claims 2-6, 8-10, 12, 21-23 – Previously presented

Claims 11, 14, 19, and 20 – Original

Claims 17-18 – Currently amended

For the reasons set further herein, Applicant respectfully requests that these rejections be overturned.

## **IV. STATUS OF AMENDMENTS**

Amended claims 17 and 18 have been submitted after the FINAL Office Action. All claim amendments submitted have been entered.

## **V. SUMMARY OF THE INVENTION**

The present invention generally relates to optics. More specifically, the invention relates to systems and methods that use electro-holograms for selectively altering the propagation of light. Systems and methods of the invention are adapted to selectively alter the propagation of light by using optical components that can be maintained in fixed alignment relative to an optical path. In some embodiments, the optical components are maintained in fixed alignment relative to each other. In particular, selective alteration of the propagation of light can be accomplished with optical components that do not require repositioning during use.

A representative optical system, which can alter the propagation of light without using movable optical components, incorporates an optical device that includes a first para-electric holographic medium. The first para-electric holographic medium stores a first hologram that can exhibit a first active mode. The first hologram exhibits the first active mode when a first electric field is applied to the first para-electric holographic medium. When in the first active mode, the first hologram directs light incident upon the first para-electric holographic medium to a first location. In some embodiments, the first para-electric holographic medium can be adapted to focus light to the first location.

In some embodiments, the optical device includes a second hologram that also exhibits an active mode. When the second hologram is in the active mode, light incident upon the optical device can be directed and/or focused to a second location. The second hologram can either be stored in the first para-electric holographic medium or in a second para-electric holographic medium of the optical device.

A representative method for selectively altering the propagation of light includes: providing a first para-electric holographic medium that includes a first hologram, the first hologram having a first active mode in which the first hologram directs light to a first location; propagating light to the first para-electric holographic medium; directing light to a second location with the first para-electric holographic medium; setting the first hologram to the first active mode; and, directing light to the first location with the first hologram in the first active mode, the first location being different than the second location.

By using embodiments of the invention, problems typically attributed to optical systems of the prior art can be alleviated. That is, difficulties associated with manufacture, installation and/or maintenance of the components used for altering the propagation of light can be reduced. For instance, non-moving components tend to be more robust than moving components and, therefore, may not be as likely to fail mechanically. Additionally, since the components are non-moving, attention does not need to be spent determining manufacturing tolerances associated with clearance of moving components, *i.e.*, the tolerances associated with ensuring moving components do not improperly contact each other or non-moving components.

Various applications also can benefit from the invention. In particular, applications that involve critical alignment issues, such as the alignment of optical components in microscopy, can exhibit improved performance since the components of the optical systems of the invention typically do not require movement relative to each other. More specifically,

once the components are positioned and the optical path is aligned, the components do not need to be moved in order to re-direct and/or re-focus light.

## **VI. CONCISE STATEMENT OF THE ISSUE PRESENTED FOR REVIEW**

The issue in this appeal is whether claims 2-6, 8-12, 14, 17-23 are unpatentable under 35 U.S.C. §103(a) as being anticipated by *Popovich* (U.S. Patent 6,356,366) in view of *De Vre et al* (U.S. Patent 5,640,256).

Specifically, as to claim 2 (the exemplary claim of Claim Group I), whether the FINAL Office Action establishes a *prima facie* case of obviousness by determining whether the FINAL Office Action provides a legally and substantively proper motivation to combine *Popovich* and *De Vre*; and whether the proposed combination of *Popovich* in view of *De Vre* discloses, teaches, or suggests each and every element of claim 2. More specifically, whether the combination of *Popovich* and *De Vre* teaches “*an optical device including a first para-electric holographic medium*,” wherein the optical device is “*operative as a switch*.”

With reference to claim 5 of Group II, whether *Popovich*, as asserted in the FINAL Office Action, discloses *a control system and electrodes* that comprise elements *used together with a para-electric holographic medium*.

With reference to claim 23 of Claim Group III, whether the FINAL Office Action establishes a *prima facie* case of obviousness by determining whether the FINAL Office Action provides a legally and substantively proper motivation to combine *Popovich* and *De Vre*; and whether the proposed combination of *Popovich* in view of *De Vre* discloses, teaches, or suggests each and every element of claim 23. More specifically, whether the combination of *Popovich* and *De Vre* teaches a method wherein *the light carries an information signal*.

## **VII. GROUPING OF THE CLAIMS**

The claims are divided into three (3) claim groupings, as set out below. For purposes of the argument set forth in this Appeal Brief, one claim from each group will be evaluated and discussed in connection with the prior art. The claim groups include:

- (1) Claim Group I, which comprises claims 2- 4, 6, 8 -12, 14, and 17 - 22;
- (2) Claim Group II, which comprises claim 5; and
- (3) Claim Group III, which comprises claim 23.

### Reasons that Claim Groups Do Not Stand or Fall Together

Although, in reality, all claims of an application are distinct, Applicant has grouped the claims of the present application into three (3) distinct claim groups. **One claim for each group has been chosen as the exemplary claim.** The reason that the claims for any given group do not stand or fall with any claims of another group is, ultimately, because they are of differing scope. This differing scope is more specifically set out below.

In regard to Claim Group I, claim 2 (the exemplary claim) is broadly directed to “*an optical device including a first para-electric holographic medium,*” wherein the optical device is “*operative as a switch.*” If the Board of Patent Appeals determines that claim 2 defines over the cited art of record, then, claims 3 - 4, 6, 8 -12, 14, and 17 - 22 should be allowed independent of the treatment of the other claim groups.

In regard to Claim Group II, claim 5 is directed toward *a control system and electrodes* that comprise elements used together with a para-electric holographic medium. If the Board of Patent Appeals determines that claim 5 defines over the cited art of record, then claim 5 should be allowed independent of the treatment of the other claim groups.

In regard to Claim Group III, claim 23 teaches a method wherein *the light carries an information signal.* If the Board of Patent Appeals determines that claim 23 defines over the cited art of record, then claim 23 should be allowed independent of the treatment of the other claim groups.

## **VIII. ARGUMENT**

<i>Outline of Argument</i>	<i>Page #</i>
A. Discussion of Claim Group I .....	5
B. Discussion of Claim Group II .....	10
C. Discussion of Claim Group III .....	11

### **A. Discussion of Claim Group I**

The FINAL Office Action rejects claim 2 under 35 U.S.C. §103(a) as allegedly unpatentable over *Popovich* in view of *De Vre*. Applicant respectfully submits that the rejection under §103 should be overturned for any of the following reasons, each of which are separately discussed below:

(1) the FINAL Office Action fails to establish a *prima facie* case of obviousness because the FINAL Office Action has not established the proper suggestion or motivation to combine *Popovich* with *De Vre* in the manner suggested; and

(2) the FINAL Office Action fails to establish a *prima facie* case of obviousness because, even assuming, *arguendo*, that a proper suggestion or motivation to combine has been established, the combined teachings of *Popovich* and *De Vre* do not disclose, teach, or suggest each and every element of claim 2.

**1. *Prima Facie Case of Obviousness Not Established: No Suggestion or Motivation to Combine References as Suggested***

Applicant respectfully submits that the FINAL Office Action has failed to identify a proper motivation or suggestion to combine *Popovich* and *De Vre*. In this regard, Applicant refers to the Federal Circuit decision of *In re Sang-Su Lee*, 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002). As clearly articulated in this opinion, general conclusions of obviousness will not be upheld, without clear evidentiary facts to support them. In this regard, FINAL Office Action rejections “cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but **must set forth the rationale on which it relies.**” The *Sang-Su Lee* opinion further states that Office Actions must “make findings of facts, and present [their] reasoning in sufficient detail that [a] court may conduct meaningful review of the agency action.” *Id.*

“The consistent criteria for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this [invention] should be carried out and would have a reasonable likelihood of success, viewed in light of the prior art.... .” “Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure.... . In determining whether such a suggestion can fairly be gleaned from the prior art, the full field of the invention must be considered; for the person of ordinary skill in the art is charged with knowledge of the entire body of technological literature, including that which might lead away from the claimed invention.” (*Emphasis added.*) *In re Dow Chemical Company*, 837 F.2d 469, 473 (Fed. Cir. 1988).

Furthermore, as acknowledged by the Court of Appeals for the Federal Circuit, the U.S. Patent and Trademark Office (“USPTO”) has the burden under § 103 to establish a case of obviousness by showing some objective teaching in the prior art or generally available

knowledge of one of ordinary skill in the art that would lead that individual to the claimed invention. See *In re Fine*, 837, F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Accordingly, to make a proper case for obviousness, there must be some prior art teaching or established knowledge that would suggest to a person having ordinary skill in the pertinent art to fill the voids apparent in the applied reference. It is respectfully asserted that no such case has been made in the FINAL Office Action.

In this regard, Applicant notes that there must not only be a suggestion to combine the functional or operational aspects of the combined references, but that the Federal Circuit also requires the prior art to suggest **both** the combination of elements **and** the structure resulting from the combination. *Stiftung v. Renishaw PLC*, 945 Fed.2d 1173 (Fed. Cir. 1991). Therefore, in order to sustain an obviousness rejection based upon a combination of any two or more prior art references, the prior art must properly suggest the desirability of combining the particular elements to create the “*optical device including a first para-electric holographic medium*,” wherein the optical device is “*operative as a switch*.” as disclosed in claim 2.

**"Particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed."** *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). "Even when the level of skill in the art is high, the [Office Action] must identify specifically the principle, known to one of ordinary skill, that suggests the claimed combination. In other words, the [Office Action] must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious." *In re Rouffet*, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998).

"A showing of a suggestion, teaching, or motivation to combine the prior art references is an essential component of an obviousness holding." *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1124-25, 56 USPQ2d 1456, 1459 (Fed.Cir.2000) (*quoting C.R. Bard, Inc., v. M3 Systems, Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed.Cir.1998)); The Federal Circuit has made it clear "that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."); *In re Dembicczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Thus, there must be some motivation, suggestion, or teaching of the

desirability of making the specific combination that was made by the applicant.” *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998).

In the present application, the FINAL Office Action has clearly failed to satisfy this evidentiary standard, which the Federal Circuit, in *In re Sang-Su Lee*, held that the Administrative Procedures Act mandates. Claims 2- 4, 6, 8 -12, 14, and 17 – 22 were rejected under substantially the same rationale, citing a similar motivation to combine *Popovich* and *De Vre*. Specifically, in rejecting dependent claim 2 the FINAL Office Action stated:

“It would then have been obvious to one skilled in the art to apply the teachings of *De Vre et al* to modify the holographic medium of *Popovich* to use a para-electric medium with holographic grating stored within being activated by applying non-zero electrical field for the benefit of providing an alternative design and structure for the switchable holographic light focusing system. Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended used (sic) as a matter of obvious design choice.”

(Emphasis Added, FINAL Office Action, pg. 4).

This is the sum total of the argument and reasoning set forth by the FINAL Office Action, clearly omitting to point out where a suggestion, teaching, or motivation exists to select a known material (in this case, a para-electric holographic medium) on the basis of its suitability for the intended use (in this case, the system as defined by claim 2).

Applicants respectfully submit that, from a legal standpoint, this falls far short of the requirement articulated by the Federal Circuit in *In re Sung-Su Lee*, and for this reason alone the rejection is improper and should be overturned.

Furthermore, from a substantive standpoint, the rejection is erroneous. *De Vre et al* describe, in col. 5, lines 15-17, their invention as a “SVHOE specifically designed to operate as a dynamic, multiple wavelength filter.” (Emphasis added). This filtering action is further defined in their column 5, lines 15 – 17, as “Once the holograms are recorded the SVHOE will filter out the predetermined wavelengths from a reference beam.” *De Vre et al* does not provide a teaching or suggestion that at least relates to that part of Applicants claim 2, which is for a device “operative as a switch” for “selectively directing” light to “either the first location or the second location.”

Thus, there is no logical reason why one skilled in the art would have combined the two systems. Thus, for at least this additional reason, Applicant submits that claim 2 patently defines over the combination of *Popovich* and *De Vre* and claim 2 should be allowed .

**2. *Prima Facie* Case of Obviousness Not Established: Combination Fails to Teach All Elements**

Applicant respectfully submits that claim 2 is allowable for at least the reason that *Popovich* in view of *De Vre* does not disclose, teach, or suggest each and every element of claim 2. For example, a teaching or suggestion that at least relates to that part of Applicants claim 2, which is for a device that is “operative as a switch” for “selectively directing” light to “either the first location or the second location,” is not disclosed, taught, or suggested by the proposed combination of *Popovich* and *De Vre*.

In this connection, the FINAL Office Action asserts:

“Popovich teaches that the holographic medium is a dispersed liquid crystal medium wherein the diffractive or active state of the recorded hologram is activated when the applied electrical field is zero. It does not teach explicitly that the holograms are in their active mode when non-zero electrical fields are applied to the holographic medium and it does not explicitly teach that the holographic medium is a para-electric holographic medium. (*Emphasis Added*, FINAL Office Action, pg. 3-4)

and further asserts:

“De Vre et al teaches that the recorded holographic grating is activated to have a diffractive function when a non-zero electrical field is applied across the holographic medium, (please see column 9, lines 45-60). It would then have been obvious to one skilled in the art to apply the teachings of De Vre et al to modify the holographic medium of Popovich to use a para-electric medium with holographic grating stored within being activated by applying non-zero electrical field for the benefit of providing an alternative design and structure for the switchable holographic light focusing system. Since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended used (sic) as a matter of obvious design choice.” (*Emphasis Added*, FINAL Office Action, pg. 4).

With respect to the statement above vis-avis *Popovich*, the Applicant agrees with the statement in the Office Action that Popovich “does not explicitly teach that the holographic medium is a para-electric holographic medium.” With respect to the statement above relating to *De Vre*, specifically to the part “for the switchable holographic light focusing system,” Applicant respectfully submits that *De Vre* does not disclose, teach, or suggest “an optical device including a first para-electric holographic medium,” said first holographic medium

storing a first hologram,” wherein the optical device is “*operative as a switch* such that an information signal carried by the light and propagated to said optical device is selectively directed to either the first location or the second location by the optical device.”

Therefore, neither *Popovich* nor *De Vre*, separately or in combination, disclose, teach, or suggest the claimed invention. Accordingly, claim 2 should be allowed.

## B. Discussion of Claim Group II

The FINAL Office Action rejects claim 5 under 35 U.S.C. §103(a) as allegedly unpatentable over *Popovich* in view of *De Vre*. Applicant respectfully submits that the rejection under §103 should be overturned for any of the following reasons, each of which are separately discussed below:

- (1) the FINAL Office Action fails to establish a *prima facie* case of obviousness because the FINAL Office Action has not established the proper suggestion or motivation to combine *Popovich* with *De Vre* in the manner suggested; and
- (2) the FINAL Office Action fails to establish a *prima facie* case of obviousness because, even assuming, *arguendo*, that a proper suggestion or motivation to combine has been established, the combined teachings of *Popovich* and *De Vre* do not disclose, teach, or suggest each and every element of claim 5.

### 1. ***Prima Facie Case of Obviousness Not Established: No Suggestion or Motivation to Combine References as Suggested***

Applicants respectfully submit that there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the alleged teaching of *Popovich* with the alleged teaching of *De Vre*.

The Office Action states:

“With regards to claims 5-6, and 17, Popovich teaches that each of the holographic optical elements (26, 28, and 30), comprises a hologram recorded with a holographic recording medium such as photopolymeric film that is interposed between a pair of *electrodes* (60) such that an electric circuit (68) is used to drive electrical field across the electrodes and therefore the holographic recording medium for switching the hologram, (please see Figure 3 and column 4, lines 44-67)”

This is the sum total of the argument and reasoning set forth by the FINAL Office Action, which has admitted elsewhere that *Popovich* “does not explicitly teach that the

holographic medium is a para-electric holographic medium,” yet fails to point out where a suggestion, teaching, or motivation exists to select such a para-electric holographic medium. Applicant respectfully submits that, from a legal standpoint, the failure to point out a suggestion, teaching, or motivation to combine cited references falls far short of the requirement articulated by the Federal Circuit in *In re Sung-Su Lee*, and for this reason alone the rejection of claim 5 is improper and claim 5 should be allowed.

**2. *Prima Facie Case of Obviousness Not Established: Combination Fails to Teach All Elements***

Applicant respectfully submits that claim 5 is allowable for at least the reason that *Popovich* in view of *De Vre* does not disclose, teach, or suggest each and every element of claim 5. For example, “*an optical device including a first para-electric holographic medium*, said first holographic medium storing a first hologram,” wherein the optical device is “*operative as a switch* such that an information signal carried by the light and propagated to said optical device is selectively directed to either the first location or the second location by the optical device,” that is a part of claim 5, via its dependency on claim 2, is not disclosed, taught, or suggested by the proposed combination of *Popovich* and *De Vre*.

Accordingly, claim 5 should be allowed.

**C. Discussion of Claim Group III**

The FINAL Office Action rejects claim 23 under 35 U.S.C. §103(a) as allegedly unpatentable over *Popovich* in view of *De Vre*. Applicant respectfully submits that the rejection under §103 should be overturned for any of the following reasons, each of which are separately discussed below:

- (1) the FINAL Office Action fails to establish a *prima facie* case of obviousness because the FINAL Office Action has not established the proper suggestion or motivation to combine *Popovich* with *De Vre* in the manner suggested; and
- (2) the FINAL Office Action fails to establish a *prima facie* case of obviousness because, even assuming, *arguendo*, that a proper suggestion or motivation to combine has been established, the combined teachings of *Popovich* and *De Vre* do not disclose, teach, or suggest each and every element of claim 23.

**1. *Prima Facie* Case of Obviousness Not Established: No Suggestion or Motivation to Combine References as Suggested**

Applicants respectfully submit that there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the alleged teaching of *Popovich* with the alleged teaching of *De Vre*. Furthermore, the Office Actions fails to explain why claim 23 has been rejected.

Specifically, the Office Action fails to point out *where a suggestion, teaching, or motivation exists, in the cited prior art, to incorporate “light (that) carries an information signal.”* Applicant respectfully submits that, from a legal standpoint, the failure to point out a suggestion, teaching, or motivation to combine cited references falls far short of the requirement articulated by the Federal Circuit in *In re Sung-Su Lee*, and for this reason alone the rejection of claim 23 is improper and claim 23 should be allowed.

**2. *Prima Facie* Case of Obviousness Not Established: Combination Fails to Teach All Elements**

Applicant respectfully submits that claim 23 is allowable for at least the reason that *Popovich* in view of *De Vre* does not disclose, teach, or suggest each and every element of claim 23. For example, “a method for selectively altering the propagation of light, wherein the light carries an information signal,” is not disclosed, taught, or suggested by the proposed combination of *Popovich* and *De Vre*.

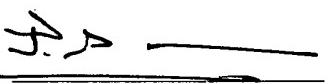
Accordingly, claim 23 should be allowed.

## **IX. CONCLUSION**

Based upon the foregoing discussion, Applicant respectfully requests that the application be allowed to issue as a patent with all pending 2-6, 8-12, 14 and 17-23.

A credit card authorization is enclosed herewith to cover the \$330 fee for this Appeal Brief. No additional fees are believed to be due in connection with this Appeal Brief. If, however, any additional fees are deemed to be payable, you are hereby authorized to charge any such fees to deposit account No. 50-1078.

Respectfully submitted,

  
\_\_\_\_\_  
P. S. Dara

Registration No. 52,793

**THOMAS, KAYDEN,  
HORSTEMEYER & RISLEY, L.L.P.**  
100 Galleria Parkway, Suite 1750  
Atlanta, Georgia 30339  
(770) 933-9500



## X. APPENDIX

### Claims

1. (Canceled)

2. (Previously Presented) An optical system comprising:

an optical device including a first para-electric holographic medium, said first holographic medium storing a first hologram, said first hologram having a first active mode, said first hologram exhibiting said first active mode when a first electric field is applied to said first holographic medium, in said first active mode said first hologram being adapted to direct light incident upon said first para-electric holographic medium to a first location, the first location being arranged off an optical axis of said optical device;

wherein said optical device is adapted to selectively direct light between said first location and a second location arranged along said optical axis, said optical device being operative as a switch such that an information signal carried by the light and propagated to said optical device is selectively directed to either the first location or the second location by the optical device.

3. (Previously Presented) The optical system of claim 2, wherein in said first active mode said first hologram is adapted to focus light incident upon said first para-electric holographic medium to said first location.

4. (Previously Presented) The optical system of claim 2,

wherein said optical device includes a second hologram, said second hologram having a second active mode, said second hologram exhibiting said second active mode in response to a second electric field, in said second active mode said second hologram being adapted to focus light incident upon said optical device said second location.

5. (Previously Presented) The optical system of claim 2, further comprising:  
a first electrode arranged proximate to said first para-electric holographic medium;  
a second electrode arranged proximate to said first para-electric holographic medium;  
and

a control system electrically communicating with said first electrode and said second electrode, said control system being adapted to apply an electric potential across said first electrode and said second electrode to generate said first electric field.

6. (Previously Presented) The optical system of claim 2, further comprising:  
means for applying said first electric field across said first para-electric holographic medium.

7. (Canceled)

8. (Previously Presented) The optical system of claim 4, wherein said optical device includes a second para-electric holographic medium, said second holographic medium storing said second hologram.

9. (Previously Presented) The optical system of claim 4, wherein said first para-electric holographic medium stores said second hologram.

10. (Previously Presented) The optical system of claim 4, further comprising:  
a first output transmission medium optically communicating with said optical device,  
said first output transmission medium being adapted to receive at least some of the light propagated to said first location; and

a second output transmission medium optically communicating with said optical device, at least a portion of the second optical transmission medium being aligned with said optical axis of said optical device, said second output transmission medium being adapted to receive at least some of the light propagated to said second location.

11. (Original) The optical system of claim 10, further comprising:  
a first input transmission medium optically communicating with said optical device,  
said first input transmission medium being adapted to propagate light to said optical device.

12. (Previously Presented) A method for selectively altering the propagation of light comprising:

providing a first para-electric holographic medium, the first para-electric holographic medium including a first hologram, the first hologram having a first active mode, in the first active mode the first hologram being adapted to direct light to a first location;

propagating light to the first para-electric holographic medium;

directing light to a second location with the first para-electric holographic medium;

setting the first hologram to the first active mode; and

directing light to the first location with the first hologram in the first active mode, the first location being different than the second location, wherein the second location is located along an optical axis defined by the first para-electric holographic medium, and the first location is located off the optical axis.

13. (Canceled)

14. (Original) The method of claim 12, wherein directing light to the first location includes focusing light to the first location.

15 -16. (Canceled)

17. (Previously Presented) The method of claim 12, wherein setting the first hologram to the first active mode comprises:

applying a first electric field across the first para-electric holographic medium.

18. (Previously Presented) The method of claim 12, further comprising:  
providing a second para-electric holographic medium, the second para-electric holographic medium including a second hologram, the second hologram having a second active mode, in the second active mode the second hologram being adapted to direct light to a third location;  
propagating light to the second para-electric holographic medium;  
directing light to the first location with the second para-electric holographic medium;  
setting the second hologram to the second active mode; and  
directing light to the third location with the second hologram in the second active mode, the third location being different than the second location.

19. (Original) The method of claim 18, wherein setting the second hologram to the second active mode comprises:  
setting the first hologram to the first active mode.

20. (Original) The method of claim 12, wherein the first para-electric holographic medium optically communicates with a first output transmission medium and a second output transmission medium; and

further comprising:  
receiving at least some of the light propagated to the first location with the first output transmission medium; and  
receiving at least some of the light propagated to the second location with the second output transmission medium.

21. (Previously Presented) The system of claim 10, wherein said second output transmission medium comprises an optical fiber.

22. (Previously Presented) The optical system of claim 11, wherein said first input transmission medium comprises an optical fiber.

23. (Previously Presented) The method of claim 12, wherein the light carries an information signal.